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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,175	12/20/2004	Kouta Nagano	16869S-137100US	5251

7590 04/27/2007  
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EXAMINER

HARRISON, MONICA D

ART UNIT	PAPER NUMBER
2813	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,175	<b>Applicant(s)</b> NAGANO ET AL.	
	<b>Examiner</b> Monica D. Harrison	<b>Art Unit</b> 2813	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 and 28-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Examiner acknowledges claims 1-17 and 28-30 have been cancelled.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 22 and 18, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Uemura (6,331,450 B1).

2. Regarding claim 24, Uemura discloses a method of making a semiconductor device comprising: (a) sealing the semiconductor device in a package by surrounding it with thermosetting resin (Figure 3D, reference 230) and thermally curing the resin at a first temperature (column 4, lines 59-67; *curing temperature is higher than the baking temperature*); (b) baking the thermosetting resin at a second temperature not higher than the first temperature (column 6, lines 61-67 thru column 7, lines 1-3); an (c) further baking the thermosetting resin at a third temperature higher than the first temperature (column 7, lines 10-16); and (d) inspecting the semiconductor device (column 6, lines 13-24).

3. Regarding claim 18, Uemura discloses wherein step (b) advances curing of the thermosetting resin (column 6, lines 61-67 thru column 7, lines 1-16).

4. Regarding claim 20, Uemura discloses further comprising a step of inspecting the semiconductor device (column 6, lines 13-24).

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5. Regarding claim 21, Uemura discloses wherein the semiconductor device comprises an integrated circuit (Figure 2F, reference 100).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (6,331,450 B1) in view of Sasaki et al (JP 2002-9111A).

6. Uemura discloses all above claimed subject matter except wherein a conductive lead is adhesively affixed to a main surface of the semiconductor device (claim 25), wherein the conductive lead is adhesively affixed to a peripheral portion of the main surface of the semiconductor device (claim 26) and wherein an electrode of the semiconductor device is electrically connected to the conductive lead (claim 27).

Sasaki et al discloses wherein a conductive lead is adhesively affixed to a main surface of the semiconductor device (Drawing 1, reference 14), wherein the conductive lead is adhesively affixed to a peripheral portion of the main surface of the semiconductor device (Drawing 1, reference 14) and wherein an electrode of the semiconductor device is electrically connected to the conductive lead (Drawing 1, reference 20).

It would have been obvious, at the time the invention was made, for one having ordinary skill in the art, to modify Uemura with the teachings of Sasaki et al, for the purpose of mounting a flip chip and a conductor in a semiconductor device.

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Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (6,331,450 B1) in view of Kajiwara et al (6,774,466 B1).

7. Uemura discloses all subject matter of independent claim 24, however Uemura does not disclose sealing the thermosetting resin by use of a transfer molding process (claim 22) or the potting process (claim 23).

Kajiwara et al discloses sealing the thermosetting resin by use of a transfer molding process (column 15, lines 53-60) and the potting process (column 29, lines 55-59).

It would have been obvious, at the time the invention was made, for one having ordinary skill in the art, to modify Uemura with the teachings of Kajiwara et al, for the purpose of using the potting process and the transfer molding process for sealing a thermosetting resin because each of these methods may be used to seal the resin around a circuit.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (6,331,450 B1).

8. Uemura discloses a temperature (column 6, lines 61-67 thru column 7, lines 1-3). However, Uemura does not disclose that the temperature is between 220C and about 260C.

It would have been obvious, at the time the invention was made, for one having ordinary skill in the art to provide a temperature is between 220C and about 260C, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the "optimum range" involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (1955).

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica D. Harrison whose telephone number is 571-272-1959. The examiner can normally be reached on M-F 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica D. Harrison  
AU 2813

mdh  
April 19, 2007

  
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